

REMARKS

Claims 1-8, 10, 11, 13, 20-25, 27, 28, and 32-35 are present in this application. Claims 20-23 have been withdrawn. Claims 1 and 24 are independent claims.

Claim Rejection

Claims 1-8, 10, 11, 13, 24, 27, 28, and 32-35 have been rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,083,240 (Pasco) in view of U.S. Application Publication 2003/0117794 (Lu). Applicants respectfully traverse this rejection.

Claims 1 and 24

Claim 1 is directed to embodiments of an electronic equipment. The electronic equipment including at least one light source, in which light of the light source is guided and emitted from an operation member having translucent properties via an optical waveguide and a region that contains phosphor and separate from the light source for emitting visible light by being excited by the light from the light source is contained in a path through which the light of the light source is guided.

Claim 24 is directed to embodiments of an electronic equipment. The electronic equipment includes a backlight and a wavelength-converting phosphor paint, which is separate from the backlight, emits light by being excited by the light of the backlight.

The Office Action alleges that Pasco teaches all claimed elements except for the region that contains phosphor. The Office Action instead alleges that Lu teaches the claimed region that contains phosphor, which is separate from the light source.

Pasco

Pasco is directed to a light guide for illuminating a keyboard. Figure 1 of Pasco shows a top view of the light guide having keys. Figure 4 of Pasco shows an alternative light guide without the keys. The light guide facilitates lighting of keys using fewer number of light sources. According to the "Background of the Invention" section, Pasco is an improvement over a conventional approach that requires a separate light source for each key, as well as alternative

approaches to directing light using light guides or reflectors. Instead, Pasco discloses a light guide that directs light around the periphery of an aperture containing a key.

Pasco discloses an embodiment where keys are made of a translucent elastomeric material having back based within apertures between front and back faces of the light guide. Light sources are light emitting diodes mounted adjacent to the light guide. In the embodiment, four light sources are used to uniformly illuminate twelve keys. To guide the light from a light source to around the periphery of a key, there are indents 8, faces of apertures 9, and notches 10 (for example, see the description of key labeled “4” at column 4, lines 20-41, for light in a clockwise path). In addition, each light source has an associated lens 7 (20) to collimate the majority of light from the associated light source into a beam that traverses the light guide.

Lu

Lu is directed to a color-shift medium for a backlight of a light-emitting source. Lu describes the thickness of the light source for an LCD as being a critical factor in reducing the thickness of the overall LCD (“Related Art”, para. 0004). Lu also discloses that conventional light sources, such as incandescent lights, halogen light and fluorescent light, have advantages such as high brightness and low cost, but because they are cylinder structures they cannot illuminate uniformly. In particular, Lu states that conventional light sources require additional light guide, reflecting plate, diffusion plate, and prism to achieve uniformity of light, which increase thickness. (para. 0006).

Lu discloses a newer light source consisting of organic light-emitting devices (OLED; Figs. 1, 2A, 2B), which consist of a vertically stacked structure of red, green, and blue organic emitting materials. The combination of green-emitting layer, red emitting layer, and blue emitting layer comprise a color shift medium 211, which when light passes through the color-shift medium, a white light is generated. Lu indicates that the vertical stacked structure is not a solution, since it increases the thickness, as well as reduces luminescence efficiency. (para. 0008).

Lu discloses a flat color-shift medium that produces a light that is high in brightness and uniform. (para. 0012). In particular, Lu discloses a flat color-shift medium that is made of uniformly mixed fluorescent materials, each of the fluorescent materials have a specific dose ratio, alleviating the need to a lateral or vertical color mixing. (paras. 0015, 0022).

Lu discloses that the color-shift medium can be formed on the backlight by either a wet coating process (para. 0023) or a dry deposition process (para. 0024). Thus, it appears that Lu discloses a light source that produces a uniform light without the need for additional elements, including a light guide, reflecting plate, diffusion plate, and prism, where the color-shift medium is formed directly on a backlight.

Differences over Pasco and Lu

Applicants submit that there is insufficient motivation to combine Pasco and Lu. The modification of Pasco with the teachings of Lu would substantially change the principle of operation of Pasco. An advantage of Pasco is a reduced number of light sources supplemented with an associated light guide. Lu, on the other hand, provides a light source that produces a uniform light, preferably for an LCD, without the need for a light guide. Lu specifically teaches generation of a light having uniform illumination without an additional light guide. Thus, the combination of Pasco and Lu would likely result in replacement of the light guide and light source of Pasco, with the flat light source that has a color-shift medium formed directly on a flat backlight of Lu. (See *In re Ratti*, 270 F.2d 810, 813, 123 USPQ 349, 352 (CCPA 1959)).

Furthermore, Applicants submit that at least there is no teaching or suggestion of locating a fluorescent layer within the light guide structure of Pasco (i.e., as a separate layer that can be removed from the light source). In particular, there is no teaching or suggestion of, for example, locating the color-shift medium of Lu on the lens, or in the path of the light beam of Pasco. In fact, the Soules reference mentioned in Lu specifically teaches forming a phosphor layer between the lens and the light source.

Lu teaches that the structure of the color-shift medium is preferably formed on a flat backlight, either by a wet coating process or by a dry deposition process, in order to generate a light of high brightness and provides uniform illumination. Pasco's invention requires a collimated light source produced using a lens 7 (20) located above a focused light source that travels along a path in the light guide medium as a light beam. Thus, it can be seen that Lu does not teach, for example, a color-shift medium that would provide uniform lighting using only light from a sparse set of non-flat light sources as in Pasco.

At least for these reasons, Applicants submit that the references, either alone or in combination, fail to teach each and every claimed element. Accordingly, the rejection fails to establish *prima facie* obviousness. Applicants request that the rejection be reconsidered and withdrawn.

Claim Rejection under 35 USC 103 – Pasco, Lu, Sze

Claim 25 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Pasco, Lu, and Sze ("Physics of Semiconductor Devices"). Applicants respectfully traverse this rejection.

The reference to Sze is relied on teach the wavelength of light in the range UV to blue light. Applicants submit that Sze fails to make up for the above stated deficiencies. Accordingly, at least for the reasons above for claim 24, claim 25 is patentable as well. Applicants request that the rejection be reconsidered and withdrawn.

CONCLUSION

In view of the above amendment, applicant believes the pending application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Robert Downs Reg. No. 48,222 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

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Respectfully submitted,

By 

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